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Where Do We Draw Our Lines?: Approach/ Avoidance Motivation, Political Orientation, and Cognitive Rigidity

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WHERE DO WE DRAW OUR LINES?:

APPROACH/AVOIDANCE MOTIVATION, POLITICAL ORIENTATION, AND COGNITIVE RIGIDITY

A Thesis Presented

by

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CHAPTER 1

INTRODUCTION

Rigidity has been widely studied by many subdisciplines of psychology, including personality, social, cognitive, developmental, educational, neuropsychology, organizational behavior, psychopathology and psychotherapy (Shultz and Searleman, 2002). However, despite continued attention from researchers, a singular definition of the rigidity construct remains elusive. Under the broad label of rigidity, researchers have defined their own focus, which has included (but has not been limited to) muscular, perceptual, behavioral and attitudinal rigidity. Most generally, a distinction has been made between two types of rigidity (see Shultz & Searleman, 2002, for a review): cognitive and behavioral. The cognitive component of rigidity refers both to the formation of a mental set and to the perseveration of a mental set, which can represent beliefs, categories, attitudes, expectancies and schemas (Chown, 1959; Rokeach, 1948; Sarmany-Schuller, 1994; Schultz & Searleman, 2002; Stewin, 1983; Vollhardt, 1990). Behavioral rigidity involves the formation and perseveration of behavioral sets, which are patterns of observable responses. The current study focused on cognitive, not behavioral, rigidity.

In social psychology, self-report questionnaires have traditionally been used to capture cognitive rigidity. Two of these self-report measures involve openness and acceptance: the Openness to Experience dimension of the five-factor model of personality (McCrae, 1996; McCrae & Costa, 1996) and the Intolerance of Ambiguity Scale (Budner, 1962). Openness to Experience is a personality dimension that favors flexibility, cognitive complexity, and novelty, and intolerance of ambiguity measures

differences in desire for certainty (Durrheim, 1995). However, these measures treat cognitive rigidity as a personality dimension; they focus on the association between individual temperament and cognitive rigidity/flexibility without exploring the underpinnings of the construct.

The emphasis of the current study was on the structural components of cognitive rigidity, and specifically the rigidity/flexibility of cognitive boundaries. This focus is more similar to constructs represented in two self-report measures that have recently received much attention in social psychology: Need for Closure Scale (NFCS; Kruglanski, Webster, & Klem, 1993) and Personal Need for Structure (PNS; Neuberg & Newsom, 1993). Kruglanski et al.'s (1994) NFCS measures five subdimensions of preference for structure: discomfort with ambiguity, decisiveness, predictability and closed mindedness. The NFCS is able to discriminate between "artistic" and "conventional" types. PNS is an individual-difference measure that refers to the preference for simplicity and structure; high levels of PNS are associated with greater tendency to stereotype (Neuberg & Newsom, 1993; Schaller, Boyd, Yohannes, & O'Brien, 1995) and form less complex categories for objects (Neuberg & Newsom, 1993).

The current research focused on an outcome measure related to these cognitive rigidity constructs, specifically NFC and PNS, in its focus on structure and boundaries. It differs from NFC and PNS in that it is a behavioral measure (i.e., a categorization task) rather than a self-report of rigidity. However, it can be distinguished from other known behavioral rigidity tasks in psychology, because its focus is on forming mental sets, not

on maintaining or changing them (e.g., Wisconsin Cart Sort Task; Harris, 1998; Stroop Color-World Interference Task; Stroop, 1935).

Approach/Avoidance Framework and Regulatory-Focus

Recently, new approaches to understand cognitive rigidity have employed a basic motivational distinction, approach versus avoidance, to identify how one's motivation may affect cognitive processing and, specifically, rigidity. Central to motivation theory and research is the distinction between approach (i.e. sensitive to positive outcomes) and avoidance (i.e. sensitive to negative outcomes). Many areas within psychology, from personality (Elliot & Thrash, 2002; Emmons, 1996; Markus & Nurius, 1996) to neuroscience (e.g., Gray, 1982, 1990; Sutton & Davidson, 1997), provide abundant evidence for the distinction between approaching positive outcomes versus avoiding negative outcomes. Work in neuroscience has identified independent motivational systems based on the response to signals of reward and punishment; in particular, a distinction has been made between a behavioral activation system (BAS) and a behavioral inhibition system (BIS] (e.g., Gray, 1982, 1990; Sutton & Davidson, 1997), and Carver & his colleagues (Carver & Scheier, 1998; Carver & White, 1994) present the BIS and BAS as the two fundamental components of self-regulation. Though represented in various frames, the underlying characteristic of each distinction is essentially the same: an approach motivation is sensitive to positive outcomes and involves moving towards, activating and promoting, whereas an avoidance motivation is sensitive to negative outcomes and involves restraining and inhibiting.

Similarly, Higgins' (1997, 1998) theory of regulatory focus identifies two distinct forms of self-regulation: promotion, which focuses on the attainment of positive ends,

and prevention, which focuses on avoidance of negative ends. Individuals in a promotion focus prefer eager approach strategies (i.e., global processing) and individuals in a prevention focus prefer vigilant avoidant strategies (i.e., local processing) (Förster & Higgins, 2005). Interestingly, there is evidence that when individuals achieve regulatory fit, a match between the method by which people pursue a goal (approach/avoidance strategies) and their goal orientation (promotion/prevention focused), it enhances their motivational strength (Higgins, 2006; Förster & Higgins, 2005).

Multiple areas of psychology have successfully applied the approach/avoidance distinction, including work on self-regulation (e.g., Carver & Scheier, 1998; Higgins, 1997, 1998), achievement (e.g., Atkinson, 1964; Elliot & Church, 1997; McClelland, Atkinson, Clarke, & Lowell, 1952), and interpersonal relations (e.g., Impett, Gable, & Peplau, 2005). Recently, the approach/avoidance distinction has even been applied to morality (Janoff-Bulman, Sheikh and Hepp, 2008). These authors propose two types of morality, reflecting the two different motivational/self-regulatory systems. The "proscriptive" system is motivationally based on avoidance, involving what we should not do (e.g., harm others), while the "prescriptive" system is motivationally based on approach, what we should do (e.g., help others). This model addresses the fundamental difference between inhibiting "bad" behaviors versus activating "good" behaviors.

Cognitive Rigidity and Approach/Avoidance Motivation

Few researchers have explored the links between approach/avoidance distinctions and cognitive rigidity/flexibility. In addition, the operationalization of cognitive rigidity/flexibility has varied from researcher to researcher. However, overall the available empirical studies provide consistent support for a relationship between an

approach-based orientation and cognitive flexibility, and an avoidance-based orientation and cognitive rigidity.

In attentional research, approach orientation has been shown to bolster attentional flexibility, while avoidance motives hamper task performance (e.g., Friedman & Förster, 2005; Förster, Friedman, Özelsel & Denzler, 2006). Some of these experiments primed approach and avoidance motives by tapping an individual's automatic social–physiological behaviors, whereby arm flexion primes the approach motive and arm extension primes the avoidance motive (e.g., Cacioppo, Priester, & Berntson, 1993). Enactment of approach, relative to avoidance behavior, expanded participants' scope of conceptual attention by enhancing access to mental representations. In addition enactment of approach behavior was associated with expanded conceptual attentional scope in the facilitation of generating alternative solutions for pre-solved anagrams.

Mood research also supports the relationship between approach orientation and cognitive flexibility and avoidance orientation and cognitive rigidity. Positive moods (e.g., analogous to approach) facilitate categorization in terms of greater category inclusion, whereas negative moods (e.g., analogous to avoidance) encourage greater category exclusion (e.g., Isen & Daubman, 1984). Additionally, trait level anxiety is associated with more rigid grouping of semantic material. More specifically, increases in trait level anxiety resulted in the rejection of more non-prototypic items from membership in a category, reliance on narrower categories, and decreased perception of relatedness and family resemblance between members from different categories (Mikulincer, Kedem & Paz, 1990).

In addition to attention and affect findings, research on language supports the relationship between approach and cognitive flexibility and avoidance and cognitive rigidity. Semin and Fiedler (1988, 1989) discuss the difference in language use depending on approach-avoidance orientation; approach mode language tends to be more abstract, whereas avoidance mode language is more concrete. An abstract focus suggests greater inclusivity, whereas a concrete focus is sensitive to error-reduction by focusing on detail, thereby making exclusivity more practical. In this way, abstraction and concreteness are analogous to conceptualizations of cognitive flexibility and rigidity.

Overall, then, an approach motive appears to produce a more "open" orientation to cognitive processing that allows for greater flexibility in forming mental sets. In contrast, an avoidance motive seems to produce greater inhibition and the establishment of narrower, more rigid mental sets.

Political Orientation

Interestingly, understanding the links between approach/avoidance and cognitive rigidity may provide a better understanding of the association between conservatism and cognitive rigidity found in past research. Empirical data supports the relationship between cognitive rigidity and political orientation, specifically conservatism, as discussed in Jost, Glaser, Kruglanski, & Sulloway's (2003) review paper. Political conservatism is a complex and ubiquitous term that in the past has been conflated with other psychological constructs; yet literatures that discuss ideology, personality and individual-differences underscore an association between conservatism and cognitive rigidity.

According to Jost et al. (2003), the ideological belief system of political conservatism is related to motivational concerns associated with the psychological management of uncertainty and threat, which underlie the two core dimensions of conservatism, resistance to change and endorsement of inequality (Wilson, 1973; Sidanius & Pratto, 1999). Jost et al. (2003) posit that, "people adopt conservative ideologies in an effort to satisfy various social-cognitive motives," including epistemic motives (p. 339), and they review research showing that these epistemic motives are associated with mental rigidity and closed-mindedness in political conservatives. In particular, evidence for the association between conservatism and mental rigidity include: (a) conservatives' greater dogmatism, which is indicative of closed-mindedness (Rokeach, 1960); (b) conservatives' greater intolerance of ambiguity, which is characterized as leading people to cling to the familiar and as a personality variable that correlates positively with prejudice (e.g., Block & Block, 1950; Budner, 1962; Eysenck, 1954; Feather, 1969; Sidanius, 1978, 1985); (c) conservatives' lower integrative complexity, suggesting fewer multiple perspectives and less high order integration of these components (e.g., Gruenfeld, 1995; Sidanius, 1984, 1985, 1988; Tetlock, 1983, 1984); (d) conservatives' decreased openness to experience (Wilson, 1973); (e) conservatives' greater uncertainty avoidance, suggesting a preference for simple over complex stimuli, and familiar over unfamiliar stimuli (Wilson, 1973); (f) conservatives' greater personal need for order and structure, indicating a heightened motivational need for order and structure (Webster & Steward, 1973; Eisenberg-Berg & Mussen, 1980); and (g) conservatives' higher need for cognitive closure, which is associated with a

preference for the status quo and a personal need for order and structure (Dittes, 1961; Webster & Kruglanski, 1994).

Cognitive rigidity may be related to a resistance to and fear of change, which are often considered central to conservative ideology; they are even reflected in self-definitions by conservatives (see, e.g., Huntington, 1957). Although some researchers (see Greenberg & Jonas, 2003) argue against resistance to change as part of conservative ideology, it is widely accepted that conservatives favor the status quo; "many changes desired by right-wingers are actually in the service of returning to previous idealized state" (Jost et al., 2003, p. 384). Altemeyer's (1996, 1998) Right Wing Authoritarianism Scale largely taps ideological commitment to tradition, authority, and social convention in the face of threats of change (Altemeyer, 1981, 1988, 1996, 1998) and has been associated with conservatism. It appears that political conservatives attempt to manage threat and uncertainty by seeking out the familiar and certain—that is, by relying on more constrained and for lack of a better word, conservative, patterns of thinking.

Approach/Avoidance and Political Orientation

Can the approach/avoidance distinction help us better understand the possible links between conservatism and cognitive rigidity? Based on past literature, associations between political conservatism and mental rigidity are plentiful. However, there is a lack of data that speaks to an underlying mechanism that can explain why and when conservatives might be more cognitively rigid than liberals. Taken together, relevant theory and research suggests that management of uncertainty and threat are important factors underlying political conservatism, and an emphasis on negative outcomes such as uncertainty and threat suggests an association with avoidant (inhibiting and restraining)

strategies. As noted above, avoidance motivation, which involves inhibition, results in greater cognitive rigidity. Is political conservatism associated with avoidance (as opposed to approach) motivation?

Janoff-Bulman, Sheikh, and Baldacci (in press) found support for this association. They proposed that conservatives are sensitive to negative outcomes, which leads to an avoidance motivational focus; liberals, on the other hand, are sensitive to positive outcomes and more apt to demonstrate an approach motivation. In their research Janoff-Bulman et al. (in press) found that conservatives favored avoidance-based moral motives (e.g., social order) and liberals showed a preference for approach-based moral motives (e.g., social justice). Additionally, they found that contemporary social issues strongly endorsed by conservatives (e.g., anti-abortion, anti-gay marriage) reflect a proscriptive, inhibition-based morality (i.e., avoidance orientation), whereas contemporary social issues strongly endorsed by liberals (e.g., affirmative action, public welfare) reflect a prescriptive, activation-based morality (i.e., approach orientation). Approach/avoidance motivation, then, may be the "missing" mechanism that can help explain the association between political conservatism and cognitive rigidity.

Present Study

The present research attempted to explore the relationships among approach/avoidance regulatory systems, political orientation and cognitive rigidity. To measure cognitive rigidity, we used a categorization task as a behavioral outcome measure. We chose this approach because we believe it provides more valid information about cognitive rigidity than traditional self-report measures (e.g., Budner, 1962; Kruglanski, Webster, & Klem, 1993; McCrae, 1996; McCrae & Costa, 1996; Neuberg &

Newsom, 1993). The task involved categorizing object items representing three levels of prototypicality (e.g., prototypic, moderately prototypic and non-prototypic; Rosch, 1975). Participants provided goodness of fit ratings for each item, in addition to a discrete judgment of whether the item was considered a member of the category (i.e., "yes" or "no"). We operationalized cognitive rigidity as greater exclusion of ambiguous items from a given category (i.e., narrower categorization).

We manipulated approach/avoidance orientation and investigated the effects of this motivational prime and political orientation on cognitive rigidity. We manipulated approach/avoidance orientation using primes that focused individuals on what they should do (i.e., approach strategy) versus what they should not do (i.e., avoidance strategy). For the priming task, we included two different approach/avoidance manipulations, one in the moral domain and the other in a non-moral domain. Given that moral beliefs and values generally underlie political orientation, we were interested in whether inhibition in the moral domain in particular would produce greater rigidity (i.e., whether the moral avoidance prime would be more associated with greater rigidity than the non-moral avoidance prime). Alternatively, and perhaps more likely based on past research findings (Friedman & Förster, 2005; Förster, Friedman, Isen & Daubman, 1984; Mikulincer, Kedem & Paz, 1990; Özelsel & Denzler, 2006; Semin and Fiedler, 1988, 1989), inhibition in general would produce greater rigidity; that is, both moral and non-moral avoidance primes would be similarly associated with greater rigidity. The domain (moral versus non-moral) differences for the approach/avoidance primes were viewed as an exploratory aspect of the current research. Based on past literature, we proposed to test

three predictions involving cognitive rigidity, approach/avoidance motivation, and political orientation.

The first prediction was based on associations between approach/avoidance orientation and cognitive rigidity. Past work in cognitive psychology suggests an approach focus is associated with approach and greater cognitive flexibility, and an avoidance focus is associated with avoidance and greater cognitive rigidity (e.g., Cacioppo, Priester, & Berntson, 1993; Friedman & Förster, 2005; Förster, Friedman, Özelsel & Denzler, 2006, Isen & Daubman, 1984; Mikulincer, Kedem & Paz, 1990). Therefore we predicted there would be a main effect of approach/avoidance prime on cognitive rigidity. Specifically, individuals who received an approach prime would report greater cognitive flexibility (i.e., greater inclusion on ambiguous items into a category) and individuals who received an avoidance prime would report greater cognitive rigidity (i.e., more frequent exclusion of ambiguous items from a category).

The second prediction was based on associations between political orientation and cognitive rigidity. Political orientation research suggests that uncertainty and threat underlie conservative ideology, and past research has found that conservatism is positively associated with cognitive rigidity (see, e.g., Jost, Glaser, Kruglanski & Sulloway, 2003). In the current research, we therefore expected conservatives to exhibit greater cognitive rigidity (i.e., more frequent exclusion of ambiguous items from a category) across both approach and avoidance primes compared to liberals.

The final and most interesting prediction involved an interaction between approach/avoidance primes and political orientation. More specifically, conservatives primed with an avoidance (but not approach) motivational prime would show the greatest

cognitive rigidity—more than conservatives in the approach-prime condition and more than liberals in either prime condition. Past research supports links between both avoidance motivation and cognitive rigidity (e.g., Cacioppo, Priester, & Berntson, 1993; Friedman & Förster, 2005; Förster, Friedman, Özelsel & Denzler, 2006, Isen & Daubman, 1984; Mikulincer, Kedem & Paz, 1990), and between political conservatism and cognitive rigidity (Jost, Glaser, Kruglanski, & Sulloway, 2003). Further, recent research suggests an association between conservatism and avoidance motives (e.g., Janoff-Bulman et al., in press), a link also suggested by conservatives' particular concern with managing uncertainty and threat (Jost et al., 2003). Together these findings suggest a joint effect of conservatism and avoidance motivation on cognitive rigidity—greater rigidity by conservatives in the avoidance-prime condition. In other words, conservatives and liberals would not be expected to be equally sensitive to avoidance primes; conservatives would be expected to be more sensitive than liberals. This prediction is consistent with Higgins's (2006) work on regulatory fit. Regulatory fit describes the experience of enhanced performance when there is a match between the method by which people pursue their goals and the goal orientation. In the current context, greater cognitive rigidity would reflect "enhanced" inhibition, and to the extent that this occurs for conservatives in the avoidant-prime condition, it would support the view that conservatives are more likely to rely on an avoidant goal orientation.

Past research has focused almost exclusively on the conservatism-rigidity link, which raises the question of whether political liberalism would be associated with greater flexibility in the current research. Further, as a corollary to our third prediction, we investigated whether liberals would demonstrate greatest flexibility (i.e., greatest

inclusion of ambiguous items) in the approach motivation condition, reflecting a possible "fit" between an approach goal orientation and the approach prime. These relationships were also explored in the current research, but were regarded as largely exploratory.

CHAPTER 2

METHOD

Participants

Participants were 223 undergraduate psychology students (65 males, 158 females) who completed a questionnaire packet as members of the Psychology Department subject pool. Participation was voluntary and students received experimental credit for their cooperation.

Design and Procedure

The study was a 2 (domain: moral x non-moral prime) X 2 (motivation: approach x avoidance prime) design with an additional no-prime control. Following the prime, participants completed a 60-item categorization task based on a list of category exemplars (Rosch, 1975), the Positive and Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 1988) and a series of demographic questions, including four questions tapping political orientation.

Materials

Prime: Approach/Avoidance and Moral/Non-Moral. Both motivational (i.e. approach/avoidance) and domain (moral/non-moral) primes asked participants to describe what one should approach (i.e., "What should you do?") versus what one should avoid (i.e., "What shouldn't you do?") (see Appendix). In the moral domain, the approach/avoidance prime focused on what one should do to be a moral person or what one should avoid so as to not be immoral. The approach moral prime asked participants to generate 10 items that would produce a more moral person. The focus was on what one should do. The specific instructions were as follows:

> We each have our own way of understanding right and wrong. We are interested in your views. What comes to mind when you think about what it means **to be moral**? More specifically, what **should** you do if your goal is **to be moral**? When we think about morality, we are basically considering **ways we should act** and the **kind of people we should be**. In other words, we think about behaviors we should engage in, types of people we **should** be, things we **should** do. With these perspectives in mind, please consider how **to be moral** by filling in the lines below.

The avoidance moral prime asked participants to generate 10 items that would produce a person who is not immoral. The focus was on what one should not do. The specific instructions were as follows:

> We each have our own way of understanding right and wrong. We are interested in your views. What comes to mind when you think about what it means **to be immoral**? More specifically, what shouldn't you do if your goal is **not to be immoral**? When we think about avoiding **immorality**, we are basically considering **ways we should not act** and the **kind of people we should not be**. In other words, we think about behaviors we **should not** engage in, types of people we **should not be**, things we should not do. With these perspectives in mind, please consider how **not to be immoral** by filling in the lines below.

In the non-moral domain, the approach/avoidance prime focused on personal preferences, specifically entertainment recommendations. In the non-moral approach prime, participants were asked to generate a list of 10 movies that would promote an enjoyable

entertainment experience. The focus was on what one should do. The specific instructions were as follows:

> We each have our own way of enjoying our free time. One popular way is watching movies at a theater or on DVD. We are interested in your views about movies. What films **should** be seen if your goal is to have an enjoyable experience? In other words, if you want to guarantee the most satisfying and enjoyable movie-watching experience, which films **should** you be sure to see? With these perspectives in mind, please consider the movies you **should** watch **to have an enjoyable experience**.

The non-moral avoidance prime asked participants to generate 10 movies to avoid if one does not want to have an unenjoyable entertainment experience. The focus was on what one should no do. The specific instructions were as follows:

> We each have our own way of enjoying our free time. One popular way is watching movies at a theater or on DVD. We are interested in your views about movies. What films **should not** be watched if your goal is to **avoid having an unenjoyable experience**? In other words, if you want to guarantee **avoiding** the least satisfying and least enjoyable movie-watching experience, which films **should** you be sure **not** to see? With these perspectives in mind, please consider the movies you **should not** watch **to avoid having an unenjoyable experience.**

In addition to these four conditions, a neutral, control condition was included. This was a no-prime condition and therefore involved neither approach/avoidance nor moral/non-moral manipulations. Participants completed all study tasks and scales except the

priming measures. This control group was included to provide a baseline against which direction of any significant effects could be tested.

Categorization Task. Following the prime, participants completed a 60-item categorization task (see Appendix). This measure was developed using prototypic, moderately prototypic and non-prototypic exemplars from Rosch's Cognitive Representations of Semantic Categories (1975). A complete list of exemplars and their prototypic ratings is appended (see Appendix). For the categorization task participants were asked to rate the extent to which an item fits a category. Participants rated 12 items within each of five categories (i.e., furniture, vehicle, weapon, clothing and carpenter tool). The 12 items were further differentiated in terms of prototypicality for each category (e.g., prototypical, moderately prototypical, non-prototypical). Using the vehicle category as an example, prototypic items included "car," "bus," "train," and "airplane"; moderately prototypic items included "jet," "tractor," "yacht," and "go-cart"; and non-prototypical included "blimp," "camel," "wheelbarrow," and "elevator." Responses to the categorization task were made on 9-point Likert scales, anchored from 1 ("not at all a good fit") to 9 ("extremely good fit"). Items were averaged within each level of prototypicality for goodness of fit rating (prototypic [a = .707], moderately prototypic [a = .755], and non-prototypic [a = .822]), with higher numbers representing greater category fit.

Participants were also asked to make a discrete judgment about whether an item is or is not a member of the category ("yes" or "no"). This has not been used in past research, but seemed essential for making claims about categorization inclusion and exclusion. Goodness of fit ratings alone would not provide a clear indication of whether

an item was considered in or out of the category. For total "no" decisions, items were counted within each level of prototypicality (prototypic [a = .764], moderately prototypic [a = .709], and non-prototypic [a = .693]), with high numbers (i.e., larger number of no's) representing greater category exclusion and thus greater cognitive rigidity.

Political Orientation. Four items in the questionnaire measured political orientation (see Skitka et al, 2005). Participants were asked to designate where they would place themselves on two 7-point Likert scales. One scale asked about liberalism/conservatism and had endpoints 1 ("Very Liberal") and 7 ("Very Conservative"), and the asked about political party affiliation and had endpoints 1 ("Strong Democrat") and 7 ("Strong Republican"). Participants were also asked, "How much do you tend to like or dislike political conservatives?" and "How much do you tend to like or dislike political liberals?" Participants responded on 7-point Likert scales anchored at 1 ("dislike extremely") and 7 ("like extremely"). These four items were highly correlated and were combined (after reverse-scoring the item about disliking/liking liberals) to provide a single measure of Political Orientation (a = .759), with higher numbers indicating greater political conservatism.

Positive and Negative Affect Schedule (PANAS). Participants completed the Positive and Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 1988) following the priming and categorization tasks. For the PANAS, participants rated the extent to which they felt each of 20 feelings and emotions (e.g., afraid, determined, nervous, excited). Surprisingly, the emotions "happy" and "sad" were not included in the original scale, so they were added to our list emotions to create a total of 11 positive emotions and 11 negative emotions. Both subscales of emotion were highly reliable: Positive Emotion

(a = .911) and Negative Emotion (a = .873); reliabilities did not differ when “happy” and “sad” were included. Analyses were conducted using these 1—item emotion scales; when re-run with the original 10-item scales, results remained unchanged. Finally, participants were also asked demographic information including age, sex, race and religious affiliation.

CHAPTER 3

RESULTS

Approach/Avoidance and Moral/Non-Moral Domain

Table 1 provides means, standard deviations and bivariate correlations between the major measures in the study. Across conditions, Positive and Negative Emotions were not correlated with any outcome measure.

We performed a series of 2 (domain: moral/non-moral) x 2 (motivation: approach/avoidance) ANOVAs on the three levels of prototypicality (prototypic, moderately prototypic and non-prototypic) for total "no" decisions and goodness of fit ratings (see Table 2 for mean scores). For total "no" decisions a significant main effect for approach/avoidance prime emerged for moderately prototypic items ($F[2,220] = 14.61$, $p < .001$), but no differences were found for prototypic ($F[2,220] = .225$, p = n.s.) and non-prototypic items ($F[2,220] = 2.71$, p = n.s.). For category fit ratings a significant main effect for approach/avoidance prime emerged for moderately prototypic items ($F[2,220] = 11.77$, $p < .001$), but no differences were found for prototypic items ($F(2,220) = .758$, p = ns). A significant main effect for approach/avoidance prime was also found for non-prototypic items ($F[2,220] = 6.55$, $p < .01$), but again the discrete judgment of non-prototypic items did not differ based on prime. Across analyses, no differences emerged for domain (moral versus non-moral); differences emerged only for approach versus avoidance primes. Category inclusion/exclusion judgments ("no" decisions) differed only for the moderately prototypical items, the most ambiguous items, and were supported by significant differences in goodness of fit ratings.

We conducted a one-way ANOVA including the no-prime control condition to determine whether approach, avoidance or both primes were causing the differences in categorization for moderately prototypic items (see Table 3 for mean scores). For total "no" decisions, results showed significant differences across the three groups ($F[2,220] = 8.45$, $p<.001$), and post hoc analyses revealed that the avoidance prime ($M = 3.78$) was significantly different from both the approach ($M = 2.41$) and no prime conditions ($M = 2.71$). The three prime conditions for category fit also significantly differed ($F[2,220] = 6.04$, $p<.01$); in this case post hoc analyses showed that the approach and avoidance primes significantly differed from each other, but neither differed from the control (see Table 3).

Political Orientation

There were no significant correlations between political orientation and any of the measures of cognitive rigidity (see Table 1). Analyses were conducted to explore the main effects and possible interactions of approach/avoidance prime and political orientation on cognitive rigidity. Multiple regression analyses included moral/non-moral and approach/avoidance primes, as well as political orientation and their interaction terms to predict cognitive rigidity (i.e., total "no" decisions and goodness of fit ratings of moderately prototypic items). No significant main effects or interactions were found for the prototypic or non-prototypic items. Again, however, significant differences emerged for the moderately prototypic items. As shown in Table 4, for total "no" decisions of category group membership, political orientation and approach/avoidance prime significantly interacted to predict cognitive rigidity (bprime x pol = -.439, SEb = .142, $p<.01$). Similarly, as shown in Table 5, for goodness of fit ratings the interaction between

approach/avoidance prime and political orientation significantly predicted cognitive rigidity for moderately prototypic items (bprime x pol = -.40, SEb = .137, p<.05). As can be seen in Figures 1 and 2, across analyses relatively high levels of conservatism were associated with more cognitive rigidity, but only when exposed to the avoidance prime.

In subsequent analyses we included a 3-way interaction term of moral/non-moral prime, approach/avoidance prime and political orientation in a trimmed regression model to test for a possible 3-way interaction with political orientation (see Table 6 & 7). The interaction term between approach/avoidance and political orientation remained significant for both total "no" decisions (bprime x pol = .807, SEb = .373, p <.05) and for category fit ratings (bprime x pol = -.400, SEb = .137, p < .005), and the 3-way interaction term for both analyses was not significant. In addition, we re-ran the full-model analyses to control for possible effects of Positive and Negative Emotions. Positive and Negative Emotions were entered at Step 1 in a hierarchical regression analyses. Results were the same; the interaction term between approach/avoidance and political orientation remained significant.

Comparison to No Prime Condition

To get a better sense of the direction of effects we conducted hierarchical multiple regression analyses that included the control condition (i.e., no-prime) as a comparison group. In separate analyses, Positive Emotions and Negative Emotions were included in the Step 1 to account for some of the error variance that might be due to the conceptually dissimilar control condition. Step two included prime, political orientation and their interaction terms to predict total "no" decisions for moderately prototypic items (see Tables 8 & 9). Results revealed that the association between political orientation and

cognitive rigidity were significantly stronger for the avoidance prime relative to the approach (bavoidance x pol = .907, SEb = .368, p= <.05; see Table 8) and neutral primes (bapproach x pol = .798, SEb = .417, p< .06; see Table 9). Specifically, higher levels of conservatism were associated with more total "no" decisions but only when exposed to the avoidance prime relative to either approach or control primes. Figure 3 graphically presents these effects.

We used equivalent methods to test the direction of effects of predicting goodness of fit ratings for moderately prototypic items (see Tables 10 & 11). Again, emotions were included in step one to control for possible error variance. Step two included prime, political orientation and their interactions to predict goodness of fit ratings for moderately prototypic items. Identical patterns emerged such that higher levels of conservatism were associated with lower goodness of fit ratings but only when exposed to the avoidance prime relative to the approach (bavoidance x pol = -.418, SEb = .139, p <.005) and control conditions (bavoidance x pol = -.279, SEb = .157, p <.08). As graphically shown in Figure 4, greater conservatism was associated with lower goodness of fit ratings in the avoidance condition relative to the approach and control conditions.

CHAPTER 4

DISCUSSION

For both total "no" decisions and category goodness of fit ratings a significant main effect for approach/avoidance prime emerged for moderately prototypic items, but no differences were found for prototypic and non-prototypic items. More specifically, approach/avoidance conditions significantly differed, and the avoidance condition was associated with greater cognitive rigidity than the approach condition; the avoidance condition also differed from a no-prime control. This finding supports past work associating avoidance motivation with greater cognitive rigidity (e.g., Cacioppo, Priester, & Berntson, 1993; Friedman & Förster, 2005; Förster, Friedman, Özelsel & Denzler, 2006, Isen & Daubman, 1984; Mikulincer, Kedem & Paz, 1990). Our behavioral measure of cognitive rigidity, which differed from other forms of rigidity measures, yielded conceptually similar results to past research. The approach and no-prime control conditions did not differ, suggesting not only that people generally tend to be relatively flexible, but that in the absence of any treatment, people tend to be similar to those with an approach orientation (see, e.g., Myers & Diener, 1995).

Across analyses, significant results were found for the moderately prototypic object items and not the prototypic or non-prototypic categories. This finding is logical given that both the prototypic and the non-prototypic items were perceived as fairly homogenous, in that either all items fit the category (prototypic) or they did not (non-prototypic). It was the items that were perceived as most ambiguous (moderately prototypic) that produced the most room for movement.

We did not find support for our second prediction; there was no main effect of political orientation on cognitive rigidity, and political orientation was not significantly correlated with any outcome measure. However, the research supported our third prediction, in that analyses yielded an interesting interaction effect for political orientation and approach/avoidance prime in producing cognitive rigidity. For both total "no" decisions and category goodness of fit ratings, political orientation and approach/avoidance prime significantly interacted to predict cognitive rigidity for moderately prototypic items. More specifically, conservatives primed with an avoidance (but not approach) motivational prime showed the greatest cognitive rigidity—more than conservatives in the approach-prime condition, more than liberals in either prime condition, and more than those in the no-prime condition. The finding that conservatives in the avoidance conditions exhibited the greatest cognitive rigidity seems to provide evidence for a differential sensitivity of conservatives to an avoidance orientation compared to liberals.

Overall, the results suggest that approach/avoidance motivation moderates the relationship between political orientation and cognitive rigidity, and specifically, political conservatism and cognitive rigidity, a finding consistent with Higgins's (Förster & Higgins, 2005) work on regulatory fit. Interestingly, a review of research on authoritarianism, a concept related to both rigidity and political orientation, has found a similar pattern of results. Christie (1993) found that 9 studies measuring both cognitive rigidity and authoritarianism yielded inconsistent findings across the studies. He proposed that the experimental conditions may be responsible for the relationship between the two concepts. Specifically, he believed that studies that measured rigidity

under stressful (ego-involving) situations showed a positive relationship between authoritarianism and rigidity, whereas this relationship disappeared when rigidity was measured under neutral (relaxed) conditions. These results suggest that rigidity may not be a general disposition, but rather a joint product of an individual's sensitivity and the environment. Similarly, in the current research, conservatives primed with an avoidance orientation showed the greatest cognitive rigidity. It is not that the conservatives were more rigid in general; rather their greater sensitivity to negative outcomes appeared to lead them to make greater use of avoidance-based inhibition strategies (i.e., cognitive rigidity) when subjected to an avoidance prime.

Our findings for liberals revealed no main effects of approach or avoidance primes. That is, liberals primed with an approach orientation did not exhibit greater cognitive flexibility nor did they respond with greater cognitive rigidity when primed with an avoidance orientation. Additionally, liberals did not differ from the no-prime control group on cognitive rigidity. The lack of results for political liberals might be due to already high levels of flexibility and therefore the approach prime did not make a difference. Additionally, liberals may not have been as affected by the avoidance primes because they do not share the same sensitivity to negative outcomes (i.e., uncertainty and threat) as conservatives and therefore didn't need to use the avoidance strategies (greater inhibition and therefore greater rigidity) to manage these concerns.

Given that moral beliefs and values generally underlie political orientation, we were interested in whether inhibition in the moral domain in particular would produce greater rigidity (i.e., whether the moral avoidance prime would be more associated with greater rigidity than the non-moral avoidance prime). Alternatively and perhaps more

likely based on past research findings (Friedman & Förster, 2005; Förster, Friedman, Isen & Daubman, 1984; Mikulincer, Kedem & Paz, 1990; Özelsel & Denzler, 2006; Semin and Fiedler, 1988, 1989), inhibition in general would produce greater rigidity; that is, both moral and non-moral avoidance primes would be similarly associated with greater rigidity. Our results found support for the latter prediction. Political conservatives exhibited a generalized sensitivity to an avoidance orientation, regardless of domain. Conservatives' avoidance-based motives in the moral domain (see Janoff-Bulman et al., in press) are therefore likely a reflection of a more general orientation involving sensitivity to negative outcomes and avoidance strategies.

A limitation of the present research is that it relied upon responses from college-aged students and not a representative sample from the public. However, because we investigated basic psychological processes (e.g., cognitive categorization and motivation), the sample should not have affected our results. Furthermore, despite the high prevalence of political liberals on campus we were able to get a good range and representation of political views. Nevertheless, in future replications of this research we will explore options for getting more representative non-student samples (e.g., National Science Foundations' Time-Sharing Experiments for the Social Sciences [TESS]).

The present study focused solely on cognitive rigidity and used a single categorization task to assess cognitive rigidity. Future experiments will explore the use of multiple measures of cognitive rigidity. The strength of the measure used in this research is that it involved a behavioral task--categorization--and not just self-report assessments of cognitive rigidity (e.g., Budner, 1962; Kruglanski, Webster, & Klem, 1993; McCrae, 1996; McCrae & Costa, 1996; Neuberg & Newsom, 1993). Additionally,

the design of our task included two different measures of cognitive rigidity (goodness of fit ratings and discrete category judgments). Past research on categorization has typically relied on only goodness of fit ratings (see, e.g., Isen & Daubman, 1984; Mikulincer, Kedem & Paz, 1990). We believe that the discrete judgments added valuable information about the categorization process, for there was a measure of actual categorization ("yes" or "no," indicating in or out of the category) and not simply ratings of fit. Using both goodness of fit ratings and discrete category judgments allowed us to collect two different and internally consistent indices of cognitive rigidity for each participant.

Our predicted future directions include replicating the findings from the current study with non-student samples and exploring the relationships among rigidity, political orientation and approach/avoidance by focusing more specifically on the role of threat and uncertainty. In addition we plan to extend our work from the object based categorization task to measure cognitive rigidity in terms of social categorization. We believe the basic processes explored in this project can be applied to the social categorization process in an effort to better understand stereotyping and prejudice. For example, recent social psychological research has found that when evaluating the national category of "American" there was a bias in the racial group that was included in the category. Specifically, implicit measures of attitudes revealed that White Americans were associated with more "American" qualities than ethnic minorities (Devos & Banaji, 2005). America is an immigrant nation and its citizens are made up of many other ethnicities outside of European descent, but this research shows how individuals rely on prototype judgments when determining social group membership. We are interested in exploring the relationships among approach/avoidance motivation, political orientation

and social categorization. Do conservatives construct narrower social categories when primed with an avoidance orientation? Further, perhaps political conservatives rely more on prototype judgments whereas political liberals utilize exemplars when deciding individual membership in a social category. An extension of this research to social categories may provide insights into some real world implications of the associations among approach/avoidance, political orientation and cognitive rigidity.

Table 1. *Bivariate Correlations for Predictor and Outcome Variables.*

	M	SD	1	2	3	4	5	6	7	8
1. Political Orientation	3.29	.99	-							
2. Positive Emotion	2.70	.87	.03	-						
3. Negative Emotion	1.49	.58	-.09	.10	-					
4. Non-Prot. Ratings	3.93	1.11	-.05	.04	.04	-				
5. Mod, Prot. Ratings	7.38	.91	-.05	-.02	.01	.51	-			
6. High Prot. Ratings	8.67	.37	-.04	-.02	-.03	.26	.66	-		
7. Non-Prot. No's	14.9	3.53	.00	-.08	-.02	-.62	-.34	-.20	-	
8. Mod. Prot. No's	3.21	2.42	.09	.04	.04	-.32	-.62	-.38	.46	-
9. High Prot. No's	.45	1.05	.02	.11	.06	-.17	-.32	-.58	.15	.46

Table 2. *Means for Prototypic, Moderately Prototypic, and Non-prototypic as a Function of Approach/Avoidance Prime.*

	Prototypic		Moderately Prototypic		Non-prototypic	
	No's	Category Fit	No's	Category Fit	No's	Category Fit
Approach	.356	8.70	2.34	7.69	13.95	4.10
Avoidance	.564	8.66	3.90	7.33	15.00	3.71

Table 3. *Means and Standard Deviations for Moderately Prototypical Objects by Approach/avoidance Prime.*

	Number of No's		Goodness of Fit Ratings	
	Mean	*SD*	Mean	*SD*
Approach	2.41	2.02	7.70	.84
Avoidance	3.78	2.67	7.24	.91
Control	2.71	1.92	7.45	.81

Table 4. *Summary of Multiple Regression Analysis for Variables Predicting Total "No" Decisions for Moderately Prototypic Items.*

Variable	B	*SE* B	β	*p*
(Constant)	6.816	1.201		.000
Moral	-.453	.583	-.251	.438
Approach/Avoidance	.876	.665	.484	.190
Political Orientation	.399	.287	.417	.166
Moral x Approach/Avoidance	.057	.265	.070	.829
Moral x Political Orientation	.156	.142	.359	.271
Approach/Avoidance x Political Orientation	-.439	.142	-1.136	.002

Table 5. *Summary of Multiple Regression Analysis for Variables Predicting Goodness of Fit Ratings for Moderately Prototypic Items.*

Variable	B	*SE* B	β	*p*
(Constant)	6.816	1.201		.000
Moral	-.453	.583	-.251	.438
Approach/Avoidance	.876	.665	.484	.190
Political Orientation	.399	.287	.417	.166
Moral x Approach/Avoidance	.057	.265	.070	.829
Moral x Political Orientation	.156	.142	.359	.271
Approach/Avoidance x Political Orientation	-.439	.142	-1.136	.002

Table 6. *Summary of Multiple Regression Analysis for Variables Predicting Total "No" Decisions for Moderately Prototypic Items as a Function of Approach/avoidance and Political Orientation.*

Variable	B	*SE* B	β	*p*
(Constant)	1.018	.567		.075
Approach/Avoidance	1.367	.353	.277	.000
Political Orientation	-.968	.603	-.371	.110
Approach/Avoidance x Political Orientation	.807	.373	.498	.032
Morality x Approach/Avoidance x Political Orientation	.006	.064	.011	.922

Table 7. *Summary of Multiple Regression Analysis for Variables Predicting Goodness of Fit Ratings for Moderately Prototypic Items as a Function of Approach/avoidance and Political Orientation.*

Variable	B	*SE* B	β	*p*
(Constant)	8.192	.209		.000
Approach/Avoidance	-.470	.130	-.259	.000
Political Orientation	.565	.222	.589	.012
Approach/Avoidance x Political Orientation	-.400	.137	-.671	.004
Morality x Approach/Avoidance x Political Orientation	.033	.023	.163	.162

Table 8. *Hierarchical Regression Analysis for Variables Predicting Total "No" Decisions for Moderately Prototypic Items as a Function of Approach/Avoidance and Neutral Conditions with Political Orientation.*

Variable	B	*SE* B	β	*p*
Step 1				
Positive Emotion	.115	.180	.043	.522
Negative Emotion	.142	.272	.035	.602
Step 2				
Positive Emotion	.196	.174	.074	.261
Negative Emotion	.246	.263	.061	.350
Avoidance	1.379	.343	.287	.000
Neutral	.320	.442	.053	.469
Political Orientation	-.202	.267	-.083	.450
Political Orientation x Avoidance	-.907	.368	.236	.015
Political Orientation x Neutral	.108	.428	.021	.800

Table 9. *Hierarchical Regression Analysis for Variables Predicting Total "No" Decisions for Moderately Prototypic Items as a Function of Approach/Avoidance and Neutral Conditions with Political Orientation*

Variable	B	*SE* B	β	*p*
Step 1				
Positive Emotion	.115	.180	.043	.522
Negative Emotion	.142	.272	.035	.602
Step 2				
Positive Emotion	.196	.174	.074	.261
Negative Emotion	.246	.263	.061	.350
Approach	-.320	.442	-.066	.469
Avoidance	1.059	.435	.220	.016
Political Orientation	-.094	.334	-.039	.779
Political Orientation x Approach	-.108	.428	-.027	.800
Political Orientation x Avoidance	.798	.417	.208	.057

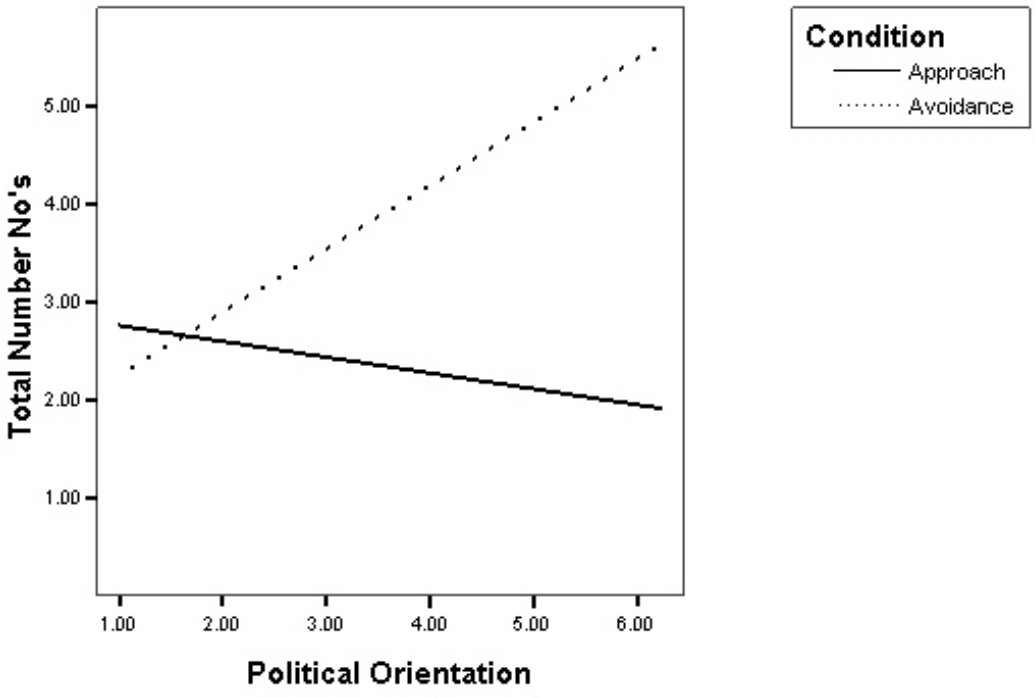
Table 10. *Summary of Hierarchical Regression Analysis for Dummy Coded Variables Predicting Goodness of Fit Category Ratings for Moderately Prototypic Items as a Function of Approach/Avoidance and Neutral Conditions with Political Orientation*

Variable	B	*SE* B	β	*p*
Step 1				
Positive Emotion	-.017	.067	-.017	.804
Negative Emotion	.010	.102	.007	.918
Step 2				
Positive Emotion	-.048	.066	-.049	.463
Negative Emotion	-.022	.099	-.015	.826
Avoidance	-.473	.129	-.264	.000
Neutral	-.277	.167	-.122	.098
Political Orientation	.175	.101	.192	.084
Political Orientation x Avoidance	-.418	.139	-.292	.003
Political Orientation x Neutral	-.139	.162	-.074	.389

Table 11. *Hierarchical Regression Analysis for Variables Predicting Goodness of Fit Category Ratings for Moderately Prototypic Items as a Function of Approach/Avoidance and Neutral Conditions with Political Orientation*

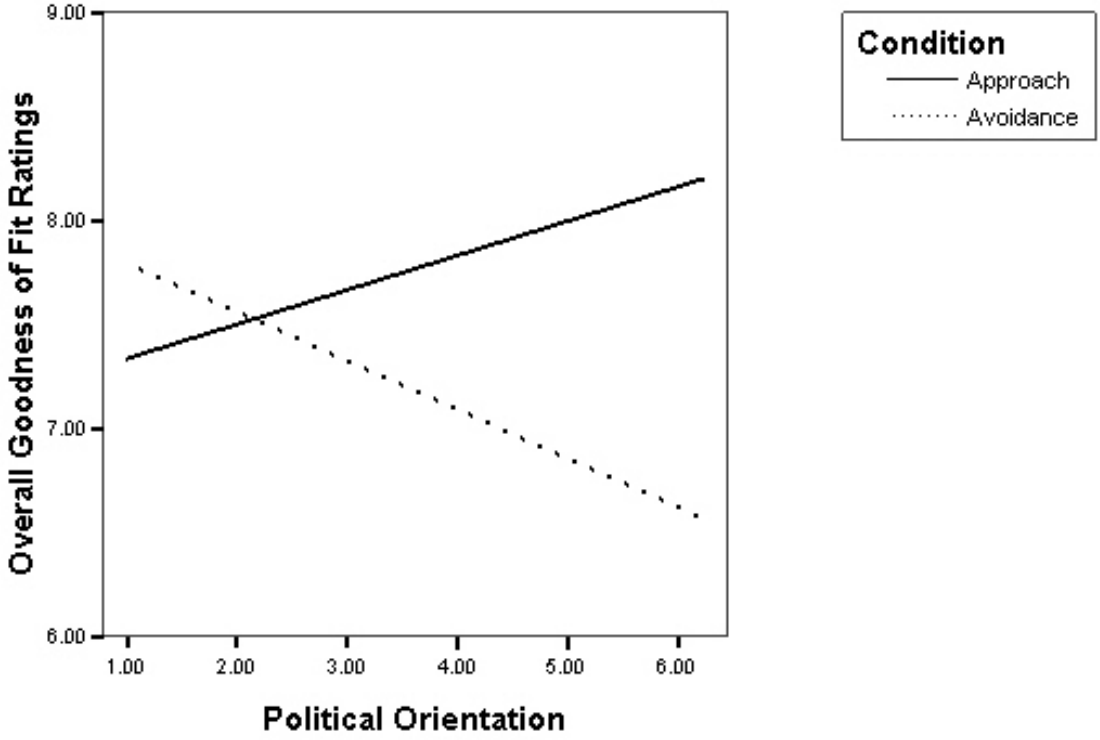
Variable	B	*SE* B	β	*p*
Step 1				
Positive Emotion	-.017	.067	-.017	.804
Negative Emotion	.010	.102	.007	.918
Step 2				
Positive Emotion	-.048	.066	-.049	.463
Negative Emotion	-.022	.099	-.015	.826
Approach	.277	.167	.152	.098
Avoidance	-.197	.164	-.110	.232
Political Orientation	.036	.126	.039	.778
Political Orientation x Approach	.139	.162	.092	.389
Political Orientation x Avoidance	-.279	.157	-.195	.078

Figure 1. *Total "No "Decisions for Moderately Prototypic Items as a Function of Political Orientation and Approach/Avoidance Conditions.*



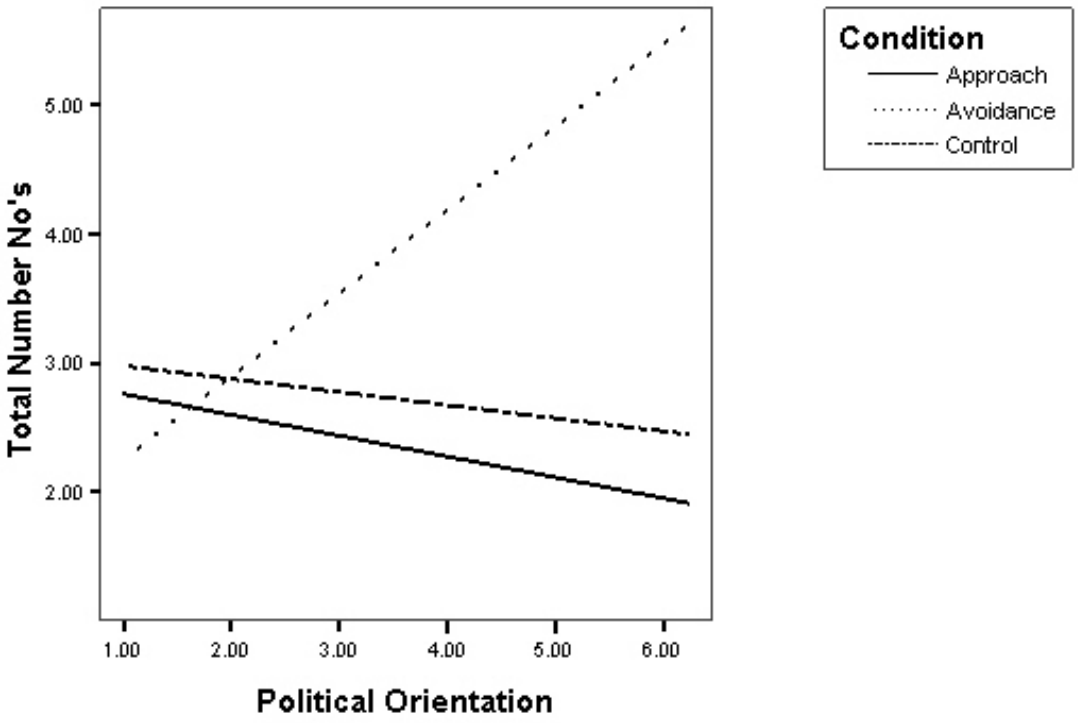
Note: Higher numbers represent more category exclusion

Figure 2. *Goodness of Fit Ratings for Moderately Prototypic Items as a Function of Political Orientation and Approach/Avoidance Conditions.*



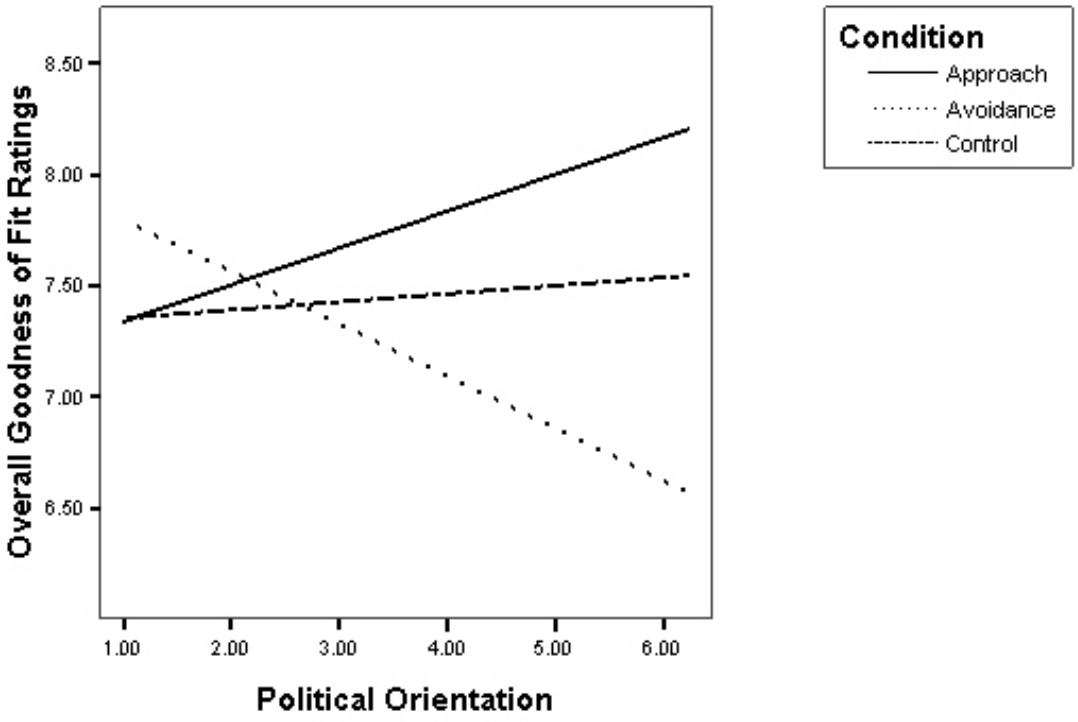
Note: Lower numbers represent more category exclusion

Figure 3. *Total "No" Decisions for Moderately Prototypic Items as a Function of Political Orientation and Approach/Avoidance/ and Neutral Conditions.*



Note: Higher numbers represent more category exclusion

Figure 4. *Predicting Goodness of Fit Ratings for Moderately Prototypic Items as a Function of Political Orientation and Approach/Avoidance and Neutral Conditions.*



Note: Lower numbers represent more category exclusion

APPENDIX

MATERIALS

I. Moral approach prime

We each have our own way of understanding right and wrong. We are interested in your views. What comes to mind when you think about what it means **to be moral?** More specifically, what **should** you do if your goal is **to be moral?** When we think about **morality**, we are basically considering **ways we should act** and the **kind of people we should be**. In other words, we think about behaviors we **should** engage in, types of people we **should be**, things we **should** do. With these perspectives in mind, please consider how **to be moral** by filling in the lines below. (Please use the format below and fill in as many lines as you can.)

TO BE MORAL:

I should _____

I should _____

I should _____

I should _____

I should _____

I should _____

I should _____

I should _____

I should _____

I should _____

II. Moral avoidance prime

We each have our own way of understanding right and wrong. We are interested in your views. What comes to mind when you think about what it means **to be immoral?** More specifically, what **shouldn't** you do if your goal is **not to be immoral?** When we think about avoiding **immorality**, we are basically considering **ways we should not act** and the **kind of people we should not be**. In other words, we think about behaviors we **should not** engage in, types of people we **should not be**, things we **should not** do. With these perspectives in mind, please consider how **not to be immoral** by filling in the lines below. (Please use the format below and fill in as many lines as you can.)

TO NOT BE IMMORAL:

I should not _____

I should not _____

I should not _____

I should not _____

I should not _____

I should not _____

I should not _____

I should not _____

I should not _____

I should not _____

III. Non-moral approach prime

We each have our own way of enjoying our free time. One popular way is watching movies at a theater or on DVD. We are interested in your views about movies. What films **should** be seen if your goal is to have an enjoyable experience? In other words, if you want to guarantee the most satisfying and enjoyable movie-watching experience, which films **should** you be sure to see? With these perspectives in mind, please consider the movies you **should** watch **to have an enjoyable experience**. (Please use the format below and fill in as many lines as you can.)

TO HAVE AN ENJOYABLE MOVIE-GOING EXPERIENCE:

I should see _____

I should see _____

I should see _____

I should see _____

I should see _____

I should see _____

I should see _____

I should see _____

I should see _____

I should see _____

IV. Non-moral avoidance prime

We each have our own way of enjoying our free time. One popular way is watching movies at a theater or on DVD. We are interested in your views about movies. What films **should not** be watched if your goal is to avoid having an unenjoyable experience? In other words, if you want to guarantee avoiding the least satisfying and least enjoyable movie-watching experience, which films **should** you be sure **not** to see? With these perspectives in mind, please consider the movies you **should not** watch **to avoid having an unenjoyable experience**. (Please use the format below and fill in as many lines as you can.)

TO AVOID AN UNENJOYABLE MOVIE-GOING EXPERIENCE:

I should not watch _____

I should not watch _____

I should not watch _____

I should not watch _____

I should not watch _____

I should not watch _____

I should not watch _____

I should not watch _____

I should not watch _____

Categorization Task

Listed below are a number of common categories, followed by items that differ in the degree to which they do or do not fit the category.
For each item, use the scales below to indicate the degree to which you believe the item fits the category. Then indicate (by checking one of the two spaces provided) whether you believe the item is or is not a member of the category.

FURNITURE

	not at all a good fit							**extremely good fit**		**category member**
chair	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
drapes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
footstool	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
desk	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
sofa	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
ashtray	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
lamp	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
fan	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
telephone	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
bookcase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
bed	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
bench	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**

VEHICLE

	not at all a good fit							extremely good fit		category member
car	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
jet	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
camel	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
yacht	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
train	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
go-cart	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
blimp	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
tractor	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
bus	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
elevator	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
airplane	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
wheel-barrow	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**

WEAPON

	not at all a good fit							extremely good fit		category member	
knife	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
arrow	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
ice pick	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
foot	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
bomb	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
bricks	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
gun	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
brass-knuckles	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
shoes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
axe	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
sword	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**
screw-driver	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes**	**____ no**

CLOTHING

	not at all a good fit							extremely good fit		category member
shirt	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
cane	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
bathing suit	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
purse	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
sweater	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
vest	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
ring	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
pants	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
bracelet	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
pajamas	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
bathrobe	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
jacket	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**

CARPENTER TOOLS

	not at all a good fit							extremely good fit		category member
drill	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
ladder	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
cement	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
bolts	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
saw	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
hammer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
rags	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
scissors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
hatchet	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
screw-driver	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
blueprints	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**
hinge	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**_____yes ____ no**

Exemplar Ratings from Rosch's Cognitive Representations of Semantic Categories (1975)

Category: **FURNITURE**

High	***Medium***	***Low***
chair (1.04)	bookcase (2.15)	drapes (5.67)
sofa (1.04)	footstool (2.45)	ashtray (6.35)
desk (1.54)	lamp (2.94)	fan (6.49)
bed (1.58)	bench (2.77)	telephone (6.68)

Category: **VEHICLE**

High	***Medium***	***Low***
car (1.24)	jet (2.79)	blimp (4.81)
bus (1.27)	tractor (3.30)	camel (5.22)
train (2.15)	yacht (3.76)	wheelbarrow (5.72)
airplane (2.64)	go-cart (3.85)	elevator (5.90)

Category: **WEAPON**

High	***Medium***	***Low***
gun (1.03)	brass knuckles (2.38)	bricks (4.64)
knife (1.40)	arrow (2.66)	foot (5.23)
sword (1.47)	ice pick (3.14)	screwdriver (5.40)
bomb (1.67)	axe (3.34)	shoes (6.23)

Category: **CLOTHING**

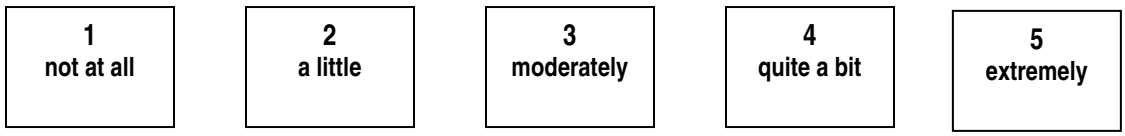
High	***Medium***	***Low***
pants (1.12)	pajamas (2.25)	purse (5.92)
shirt (1.14)	bathing suit (2.44)	ring (6.11)
jacket (1.68)	bathrobe (2.65)	bracelet (6.24)
sweater (1.89)	vest (2.81)	cane (6.25)

Category: **CARPENTER TOOLS**

High	***Medium***	***Low***
saw (1.04)	ladder (2.64)	cement (4.91)
hammer (1.34)	blueprints (2.90)	hatchet (5.15)
screwdriver (1.56)	hinge (3.12)	rags (5.20)
drill (1.59)	bolts (3.63)	scissors (5.36)

I. Positive and Negative Affect Scale (PANAS;Watson, Clark & Tellegen, 1988)

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you now feel each of the following. Use the following scale below to record your answers.



_____ afraid
_____ determined
_____ nervous
_____ excited
_____ irritable
_____ proud
_____ guilty
_____ ashamed
_____ attentive
_____ distressed
_____ active
_____ scared
_____ enthusiastic
_____ inspired
_____ upset
_____ interested
_____ alert
_____ jittery
_____ strong
_____ hostile

Demographic Questionnaire

Gender: ___male ___female

Age: ____ **Class year**: ___freshman ___sophomore ___junior ___senior

Race/Ethnicity: ___Black ___Latino/Hispanic ___Asian ___White ___Other

Religion: ___Catholic ___Evangelical Christian ___Protestant
___Jewish ___Muslim ___Buddhist ___Other

To what extent do you consider yourself a religious person?

not at all religious						**extremely religious**
1	2	3	4	5	**6**	**7**

How important a role does religion play in your life?

not at all important						**extremely important**
1	2	3	4	5	**6**	**7**

Where would you place yourself politically on the following two scales?

very liberal			**neither**			**very conservative**
1	2	3	4	5	**6**	**7**

strong Democrat			**neither**			**strong Republican**
1	**2**	**3**	**4**	**5**	**6**	**7**

How much do you tend to like or dislike political conservatives?

dislike extremely						**like extremely**
1	2	3	4	5	**6**	**7**

How much do you tend to like or dislike political liberals?

dislike extremely						**like extremely**
1	2	3	4	5	**6**	**7**

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